

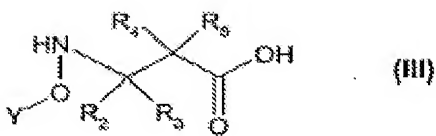
This listing of claims will replace all prior versions of the claims and listing of the claims in the application:

- $$\begin{array}{c}
 \text{O} \\
 \parallel \\
 \text{Y}-\text{O}-\text{N}-\text{C}-\text{C}(\text{R}_2)(\text{R}_3)-\text{C}(\text{R}_4)(\text{R}_5)-\text{C}(=\text{O})-\text{N}-\text{C}(\text{CH}_2)_2-\text{S}-\text{C}(=\text{O})-\text{N}-\text{R}_1 \\
 \parallel \\
 \text{H}
 \end{array}
 \quad (\text{VII})$$

$$\text{Z} \cdot \text{HN}(\text{R}_4)(\text{R}_5) - \text{C}(\text{R}_2)(\text{R}_3) - \text{C}(=\text{O}) - \text{N}(\text{Ar}) - \text{C}(=\text{O}) - \text{O} - \text{C}(=\text{O}) - \text{O} \quad (\text{II})$$

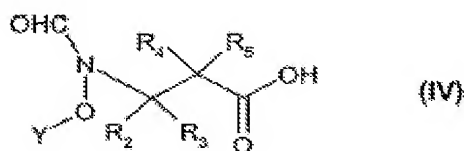
(III)

contacting compound (II) with a strong nucleophile/weak base in a suitable solvent under conditions to form compound (III) of the formula (III)



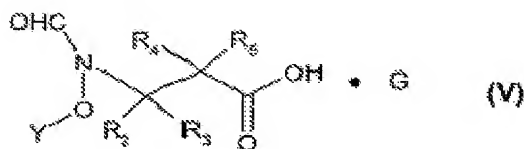
followed by Step 2A:

contacting compound (III) with a ~~formulating~~ formylating agent in a suitable solvent under conditions suitable to form a compound of formula (IV)



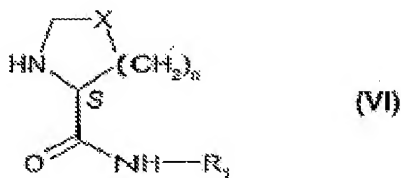
followed by Step 2B:

contacting compound (IV) with an amine or an alkaline metal hydroxide in a suitable solvent under conditions to form a compound of formula (V)



followed by Step 3:

contacting compound (V) with a compound of formula (VI)



in the presence of a suitable base and one or more coupling agents in a suitable solvent under conditions to form a compound of formula (VII)

wherein

Y is a hydroxy protecting group;

each of R₂, R₃, R₄ and R₅ is, independently, hydrogen or alkyl, or (R₂ and R₃) and/or (R₄ and R₅) collectively form a C₄₋₇cycloalkyl;

G is -O⁻metal⁺ or -OH•amine;

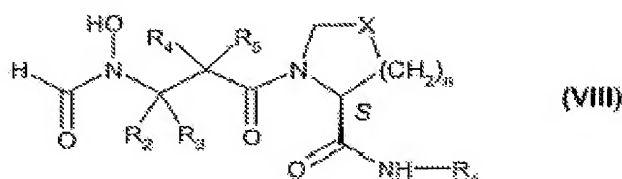
R is alkyl;

Z is a strong organic or inorganic acid; and

n is 0-3, provided that when n is 0, X is -CH₂-.

2. **(Previously Presented)** The process of Claim 1 followed by Step 4, contacting the compound of formula VII, wherein R₁ is heteroaryl having an N heteroatom, with an oxidizing agent to form the corresponding N-oxide derivative.

3. **(Previously Presented)** The process of Claim 2 followed by the additional step of removing the hydroxyl protecting group of compound VII to form the compound of formula VIII:



wherein R_1 , R_2 , R_3 , R_4 , R_5 , X and n are as defined above.

4. **(Previously Presented)** The process of Claim 1, wherein

each of R₂, R₃ and R₅ is hydrogen;

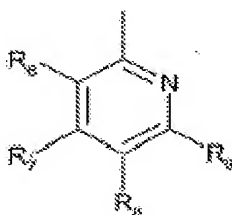
R₄ is butyl;

X is $-\text{CH}_2-$;

n is 1;

Y is benzyl or *t*-butyldimethylsilyl; and

R_1 is of the formula



wherein

R_6 and R_9 are hydrogen;

R_7 is hydrogen or C_{1-7} alkyl; and

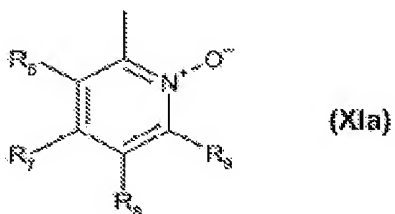
R_8 is hydrogen, halogen or C_{1-7} alkyl.

5. **(Previously Presented)** The process of Claim 4, wherein

R_7 is hydrogen; and

R_8 is fluoro.

6. **(Previously Presented)** The process of claim 1, wherein R_1 is of the formula (XIa)



each of R_2 , R_3 and R_5 is hydrogen;

R_4 is butyl;

X is $-CH_2-$;

n is 1;

Y is benzyl or t-butyldimethylsilyl;

R_6 and R_9 are hydrogen;

R_7 is hydrogen or C_{1-7} alkyl; and

R_8 is hydrogen, halogen or C_{1-7} alkyl.

7. **(Previously Presented)** The process of Claim 6 wherein R_8 is halo or ethyl.

8. **(Previously Presented)** The process of Claim 6 wherein R_7 is hydrogen and R_8 is fluoro.

9. **(Currently Amended)** The process of Claim 1 wherein

for Step 1A the temperature is about 10°C to about 40°C , the water soluble base is sodium carbonate, sodium bicarbonate, potassium carbonate, potassium bicarbonate, or an alkaline metal hydroxide, and the solvent is water/ethyl acetate,

for Step 1B the temperature is about -10°C to about 10°C , the strong nucleophile/weak base is lithium hydroperoxide, and the solvent is THF/water,

for Step 2A the temperature is about -20°C to about 20°C , the ~~formylating~~ formylating agent is formic acetic anhydride, and the solvent is ethyl acetate,

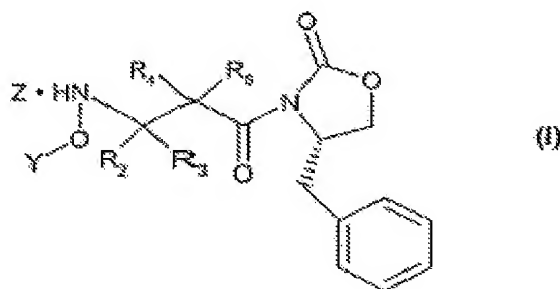
for Step 2B the temperature is about -5°C to about 40°C , the solvent is heptane and the G substituent is of the formula $-\text{OH}\cdot\text{amine}$ wherein the amine is dicyclohexylamine,

for Step 3 the temperature is about 10°C to about 40°C ~~th~~, the solvent is water/ethyl acetate, and the coupling agent is EDCI/HOBt, and

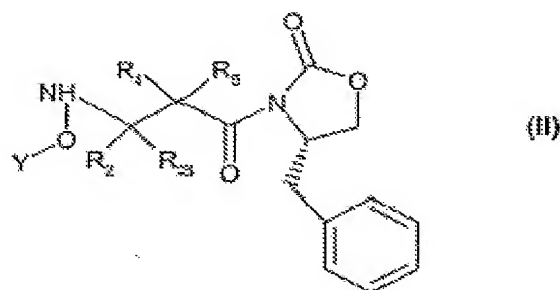
for Step 4 the temperature is about 10°C to about 35°C , the solvent is ethyl acetate and the oxidizing agent is urea/hydrogen peroxide with phthalic anhydride or magnesium monoperoxyphthalate.

10. **(Previously Presented)** A process comprising

contacting a compound of the formula:(I)



with a base in a suitable solvent to form compound (II) of formula

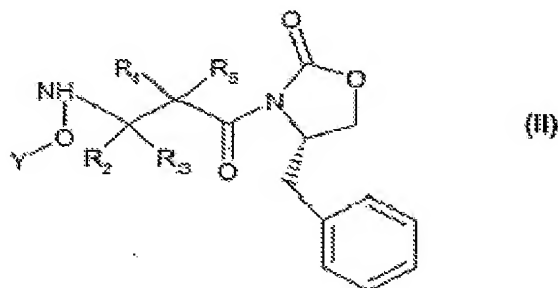


wherein

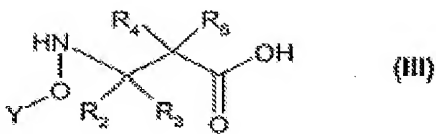
Y is a hydroxy protecting group;

each of R_2 , R_3 , R_4 and R_5 is, independently, hydrogen or alkyl, or (R_2 and R_3) and/or (R_4 and R_5) collectively form a C_{4-7} cycloalkyl;
and Z is a strong organic or inorganic acid.

11. **(Previously Presented)** A process comprising contacting compound (II) of the formula



with a strong nucleophile/weak base in a suitable solvent under conditions to form compound (III) of the formula



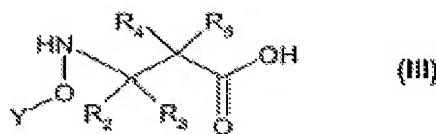
wherein

Y is a hydroxyprotecting group; and

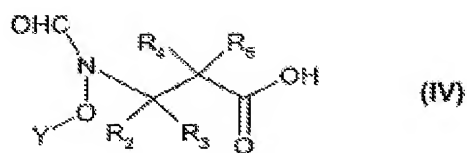
each of R_2 , R_3 , R_4 and R_5 is, independently, hydrogen or alkyl, or (R_2 and R_3) and/or (R_4 and R_5) collectively form a C_{4-7} cycloalkyl.

12. **(Previously Presented)** A process comprising

contacting compound (III) of the formula



with a formulating agent in a suitable solvent under conditions suitable to form a compound of formula (IV)



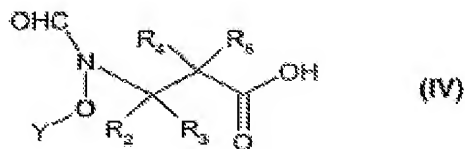
wherein

Y is a hydroxy protecting group; and

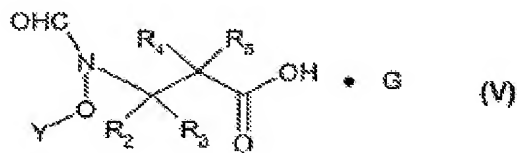
each of R_2 , R_3 , R_4 and R_5 is, independently, hydrogen or alkyl, or (R_2 and R_3) and/or R_4 and R_5) collectively form a C_{4-7} cycloalkyl.

13. **(Previously Presented)** A process comprising

contacting compound (IV) of the formula



with an amine or an alkaline metal hydroxide in a suitable solvent under conditions to form a compound of formula (V)



wherein

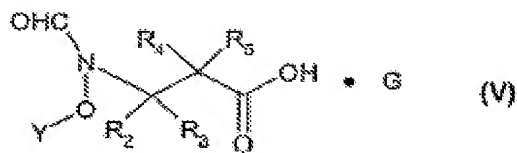
Y is a hydroxy protecting group;

each of R_2 , R_3 , R_4 and R_5 is, independently, hydrogen or alkyl, or (R_2 and R_3) and/or (R_4 and R_5) collectively form a C_{4-7} cycloalkyl; and

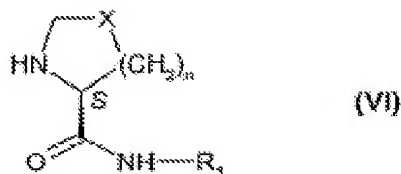
G is $-O^-metal^+$ or $-OH \cdot amine$.

14. **(Previously Presented)** A process comprising

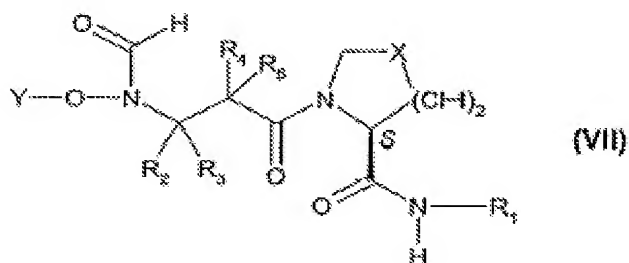
contacting compound (V) of the formula



with a compound of formula (VI)



in the presence of a suitable base and one or more coupling agents in a suitable solvent under conditions to form a compound of formula (VII)



wherein

Y is a hydroxy protecting group;

each of R_2 , R_3 , R_4 and R_5 is, independently, hydrogen or alkyl, or (R_2 and R_3) and/or (R_4 and R_5) collectively form a C_{4-7} cycloalkyl;

G is $-O^{\ominus}\text{metal}^{\oplus}$ or $-OH\bullet\text{amine}$;

X is $-\text{CH}_2-$, $-\text{S}-$, $-\text{CH}(\text{OH})-$, $-\text{CH}(\text{OR})-$, $-\text{CH}(\text{SH})-$, $-\text{CH}(\text{SR})-$, $-\text{CF}_2-$, $-\text{C}=\text{N}(\text{OR})-$ or $-\text{CH}(\text{F})-$;

R is alkyl;

R_1 is aryl or heteroaryl; and

n is 0-3, provided that when n is 0, X is $-\text{CH}_2-$.

15. (New) The process of claim 1, wherein

Y is a hydroxy protecting group;

R_2 , R_3 , and R_5 are hydrogen;

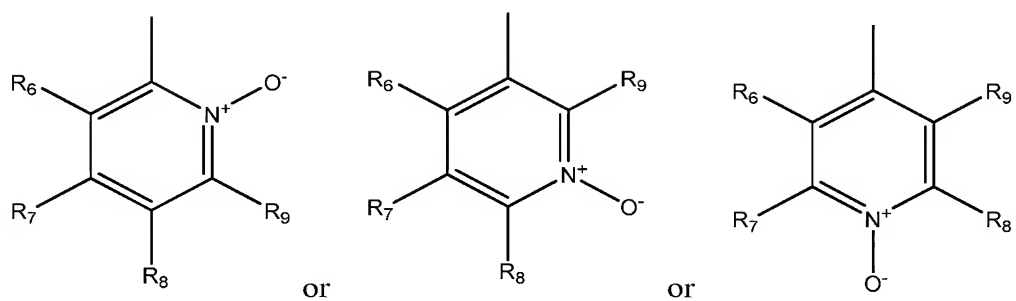
R_4 is alkyl;

X is $-\text{CH}_2-$ or $-\text{CH}(\text{F})-$; and

R_1 is heteroaryl.

16. (New) The process of claim 15, wherein

R^1 is:



17. (New) The process of claim 1, wherein

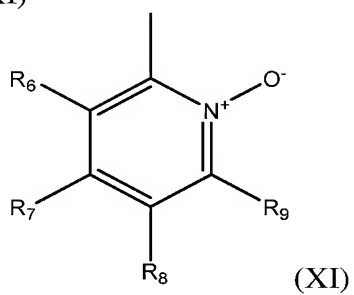
Y is a benzyl group;

R₂, R₃ and R₅ are hydrogen;

R₄ is *n*-butyl;

X is -CH₂-; and

R₁ is a heteroaryl of formula (XI)



wherein

R₆, R₇, and R₉ are hydrogen; and

R₈ is fluoro.